

Annual Index-Volume 53

LIST OF ISSUES IN VOLUME 53, January 1975 to December 1975

No. 1	January	Pages 1—114
" 2	February	115—146
" 3	March	147—178
" 4	April	179—214
" 5	May	215—254
" 6	June	255—286
" 7	July/August	287—314
" 8	September	315—350
" 9	October	351—386
" 10	November	387—418
" 11	December	419—454

A

AAGM REPORT 103
 ABS PLASTIC, RECYCLING 427-429
 ACCELERATORS, ION IMPLANTATION 388-394
 ACD (Automatic Call Distributor), No. 2B 180-187
 ACD (Automatic Call Distributor), No. 5 197-202
 ACHIEVEMENTS, NOTABLE 110-111
 ACOUSTIC TORPEDO 100, 102-103
 ALL NUMBER CALLING (ANC) 10
Alpha and Omega of the Network: Customer Products,
J. W. Schaefer 16-29
 ALTERNATE ROUTING 7-15
 AMERICAN SOCIETY FOR QUALITY CONTROL 89
Analytical Tools Simplify Telephone Company
Operations, Warren A. Cornell 116-128
 Armstrong, Col. E. H. 89
 Armstrong, Douglas B., *Testing PBX Circuit Packs*
 307-311
 Arnold, H.D. 65
 Arnold, Thomas F., *Minimizing Downtime for Electronic*
Switching Systems 157-161
 Auston, D. H. 144-145
 AUTOMATIC CALL DISTRIBUTOR, No. 2B 180-187
 AUTOMATIC CALL DISTRIBUTOR, No. 5 197-202
Automatic Intercept System (AIS) Grows 385
 AUTOMATIC MESSAGE ACCOUNTING (AMA) 10, 37
 AUTOMATIC NUMBER IDENTIFICATION (ANI) 35
 AUTOMATIC TESTING, PBX CIRCUIT PACKS 307-311

B

Baker, W. O. 63
 Ballman, A. A. 66, 67
 BANKING BY TELEPHONE 376-383
 Bardeen, John 72, 73
 BATTLE ANNOUNCING SYSTEMS 98
 Behmer, Larry, *Serving Hotels, Motels, and Hospitals*
and the People They Serve 272-277

Bell, Alexander Graham 83
 BELL SYSTEM CENTER FOR TECHNICAL EDUCATION
 189, 327
 Bennett, W. R. 89
Better Glass Fibers for Optical Transmission, Merle D.
Rigterink 340-345
 Biggs, B. S. 64
 Bishop, J. Daniel, *DC-to-DC Converters* 438-442
 Biskeborn, M. C. 63, 64
 Black, Harold S. 84-86
 Bobeck, Andrew H. 69, 172
 Bode, Hendrik W. 85-86
 Bogdanowicz, Carol M. 207
 Boothby, O. L. 65
 Borison, V. Scott, *TRANSACTION™ Telephone Gets*
the Facts at the Point of Sale 376-383
 Bowen, E. G. 101
 Boyle, Willard S., *Device Development* 70-81
 Bozorth, R. M. 65
 Brattain, Walter 72, 73
 BRIDGE, IMPEDANCE-MEASURING 226-233
 Brown, Walter L., *Ion Implantation* 388-394
 Buehler, E. 67
 Burton, J. A. 67
 Bush, Vannevar 101
 Buus, Robert G., *T-Carrier Administration System*
Speeds Service Restoration 216-225

C

CABLES, LIGHTGUIDE 444
 CAMA FEATURES FOR No. 1 ESS 395-399
 Campbell, George A. 84-89
 CAPITAL PLANNING 120-121
 CAROT II TRIAL 282
 Carson, John R. 84-89
 CCD (Charge-Coupled Device) USED FOR IMAGING
 162-169
 CDA (Customer Demand Analysis) 123

CENTRALIZED ATTENDANT SERVICE 247, 249
 CENTRALIZED AUTOMATIC MESSAGE ACCOUNTING 395-399
 CENTRALIZED AUTOMATIC REPORTING ON TRUNKS 15
 CENTRALIZED INVENTORY MANAGEMENT SYSTEM 122
 CENTRALIZED TESTING AND MAINTENANCE 46, 48, 49
 CENTREX 21
 CHANNEL SERVICE UNIT 425
 CHECK VERIFICATION BY TELEPHONE 376-383
 Chin, G. Y. 65
 Chynoweth, Alan G., *Conserving Materials in the Bell System* 430-437
 CICS (C Stock Information Control System) 122
 CIRCUIT DESIGN SYSTEM 188-196
 CIRCUIT PACK TESTING (PBX) 307-311
 CIRCUIT PROVISION OPERATIONS 370
 Clarke, W. J. 63
 CMG-3 CODER-DECODER 408
 COAXIAL CABLE 55-59
 COMBINED LINE AND RECORDING (CLR) 6
 COM KEY™ SYSTEMS 24
 COMPETITION 128
 COMPUTER-OPERATED Z/Y BRIDGE (COZY) 226-233
 COMPUTER PROGRAMS FOR TESTING PBX CIRCUIT PACKS 307-311
Computers and Computer-Based Systems, Victor A. Vyssotsky 90-95
 COMPUTING TECHNOLOGY, BELL LABS' CONTRIBUTIONS TO 95
 CONSERVATION OF RESOURCES 69
Conserving Materials in the Bell System, Alan G. Chynoweth 430-437
 COPS (Central Office Planning System) 121
 Cornell, Warren A., *Analytical Tools Simplify Telephone Company Operations* 116-128
 COSMIC SYSTEM 366
 COZY: *Accurate Automatic Measurements of Components*, Lowell D. White 226-233
 CREDIT AUTHORIZATION BY TELEPHONE 376-383
 CREDIT CARDS 376-383
 CROSSBAR, No. 4A TOLL 9-10, 409-415
 CROSSBAR SWITCHING 30-39
 CRS (Centralized Results System) 126
 CRYSTALS, SYNTHETIC 65
 CUSTOMER PRODUCTS 16-29
 CUSTOMER SWITCHING SYSTEM, THE DIMENSION™ PBX 316-323
 CVD PROCESS FOR GLASS FIBERS 340-345

D

Danielson, Warren E., *Exchange Area and Local Loop Transmission* 40-49
 Darlington, Sydney 85
 DATA COLLECTION AND ANALYSIS, PBC SYSTEM 409-415
 DATA COMMUNICATIONS 420-426
 DATA MANAGEMENT SYSTEM, PACKAGED 124-125
 DATA-PHONE® SERVICE 25
 DATA-PHONE® DIGITAL SERVICE 420-426
 DATA SERVICE UNIT 425
 DATA SETS 24-25
 DATA UNDER VOICE 424
 DATA-VOICE MULTIPLEXER 136-142
 Davisson, C. J. 72, 73
 DCES (Discretionary Capital Expenditure System) 121
 DC-to-DC Converters, J. Daniel Bishop and Robert J. Healey 438-442
 DDS (Digital Data System) 420-426
 Dearborn, E. F. 69
 DeCoste, J. B. 63
 De Loach, Bernard C., Jr. 74, 76
 De Loach, Bernard C., Jr., *On the Way: Lasers for Telecommunications* 203-210
 Derrick, Link 79
Design Details of New Lead-Poison Tester Offered to Manufacturers 285

DESIGN DEVELOPMENT LABORATORY 80
 DESIGN LINE™ *Decorative Telephones: Just the Beginning*, Norris R. Hall 234-241
 DESK SETS 18, 27
Device Development, Willard S. Boyle 70-81
 DEW LINE 106
 Dietzold, R. L. 85
 DIGITAL CARRIER SYSTEM, T1C 256-263
Digital Data System Launches a New Era in Data Communications, The, Clarence R. Moster and Leonard R. Pamm 420-426
 DIGITAL ELECTRONICS 79
 DIGITAL HIERARCHY 43
 DIGITAL TRANSMISSION SYSTEM, T4M 352-359
 DIMENSION™ CUSTOMER SWITCHING SYSTEM 19, 21
 DIMENSION™ PBX: *A New All-Electronic Customer Switching System*, The, Allan M. Gerlich, Roy V. Lohmiller, and George E. Saltus 316-323
 DIRECTORY ASSISTANCE, ACD FOR 197-202
 DIRECT DISTANCE DIALING 7-15
 DIRECTORY SERVICES 118-119
 DISTORTION IN HIGH-FREQUENCY AMPLIFIERS 295-299
 DOPING PROFILE, MEASUREMENT OF 129-135
 DSAP (Directory Scope Analysis Program) 118-119

E

EADAS (Engineering and Administrative Data Acquisition System) 12, 282
 Ebbinghaus, Hermann 150
 ECHO CONTROL 15
 ECHO SUPPRESSORS 328
 ECONOMETRIC STUDIES 128
 ECONOMIC THEORY 126, 128
 800A/801A PBX MAINTENANCE 300-306
 812A PBX 20-21, 326-327
 ELECTRIC WAVE FILTER 84
 ELECTRICAL RESEARCH PRODUCTS, INC. 22-23
 ELECTROMAGNETIC FIELD, THEORY OF 83
 ELECTRONIC SWITCHING SYSTEM (ESS) 30-39, 329
 ELECTRONIC SWITCHING SYSTEMS, MINIMIZING DOWNTIME 157-161
 ELECTRONIC TECHNOLOGY, RECENT USE OF 361-363
 ELECTRONIC TRANSLATOR SYSTEM (ETS) 10, 409-415
 ELECTRONS, DYNAMICS OF 76
 Elmen, G. W. 65
 EMERGENCY RECOVERY DISPLAY (ERD) 159-160
 ENGINEERING AND ADMINISTRATIVE DATA ACQUISITION SYSTEM (EADAS) 12, 282
 ENGINEERING RESEARCH CENTER 326
 ENVIRONMENTAL FACTORS 69
 ERPI 22-23
 ESS (Electronic Switching System)
 No. 1 331, 332, 362-364, 395-399
 No. 2 331, 362-364
 No. 3 331, 362-364
 No. 4 328, 330-331
Exchange Area and Local Loop Transmission, Warren E. Danielson 40-49
 EXCHANGE AREA, NEW PRODUCTS FOR 360-367
Experimental Page Facsimile System, An, Hugh A. Watson 162-169
Experimental System Brings Lightwave Communications Closer 444
Exploring the Speed of Mental Processes, Max V. Mathews, David E. Meyer, and Saul Sternberg 148-156

F

FACTORS SUPPORTING INVENTION 170-172
Faculty for Invention, A (staff article by A. M. Bobotis) 170-174

Faulty Trunks: A New Look at an Old Problem,
Edwin J. Messerli 278-283
FEEDBACK AMPLIFIER, INVENTION OF 54
FEEDBACK PROFILING METHOD 129-135
Feher, George 73, 77
FERRORESONANT REGULATED DC-TO-DC CONVERTERS
438-442
FEXT (Far-End Crosstalk) 258-259
FIBERS, OPTICAL 203-206, 340-345, 444
FIELD ENGINEERING FORCE 100
50TH ANNIVERSARY OF THE RECORD 346-347
Fisk, James B. 101
Flat-Screen Video 175
Fletcher, Harvey 88
Fletcher, R. C. 77
FORECASTING 123, 125
Foster, R. M. 85
Frank, Amalie J. 173
Friis, Harald 101
Frosch, Carl 79
Fuller, C. S. 67

G

GALLIUM ARSENIDE LASERS 203-210, 349
Galt, J. K. 77
Garraty, William C., *Introducing CAMA Features to No. 1 ESS* 395-399
GENERAL TOLL SWITCHING PLAN, 1930 6-7
Germer, L. H. 72, 73
Gerrish, Allan M., *The DIMENSION™ PBX: A New All-Electronic Customer Switching System* 316-323
Gillette, Dean, *Innovation in the Exchange Area* 360-367
GLASS FIBERS 203-206, 340-345
Gould, H. L. B. 65
Graczyk, James F., *T1C Carrier: The T1 Doubler* 256-263
GRAND FORKS PAR SITE 104
GROWTH OF THE BELL SYSTEM 6-8, 15
G36 Handset: Good News for Serving Far-out Customers 288-294
GUIDANCE SYSTEMS 103-107

H

Hall, Norris R., *DESIGN LINE™ Decorative Telephones: Just the Beginning* 234-241
Hancock, Harvey G., *Recycling Turns Scrap Phones into New Plastic Products* 427-429
HANDSET FOR RURAL SERVICE 288-294
HANDSET, TWO-PIECE PLASTIC 240
Hannay, N. B. 67
Hardiman, Jerry 68
Hartley, Ralph V. L. 88-89
Hartman, Robert L. 207
Hawkins, W. L. 62, 64
Hawley, George T., *G36 Handset: Good News for Serving Far-out Customers* 288-294
Haynes, J. R. 77
Healey, Robert J., *DC-to-DC Converters* 438-442
Heaviside, Oliver 83-84
HEMATOFLUOROMETER 285
Higgins, W. H. C. 107
Highlights of Bell Labs' Contributions to Early Radio 108
Hoffman, Maurice A., *New Features for the 770A PBX* 242-250
Holden, A. N. 66
Hopfield, J. J. 77
Hopkins, I. L. 63

Horn, F. H. 63
HOSPITAL TELEPHONE SERVICE 272-277
HOTEL/MOTEL TELEPHONE SERVICE 272-277
Howard, J. B. 63, 64
Hubbauer, Philip 68
Hubbauer, Philip, *Recycling Turns Scrap Phones into New Plastic Products* 427-429
Humphries, Wylie B., *Simplifying the Design of Special Service Circuits* 188-196

I

ICBM 104-105
ICUR (Individual Circuit Usage Recording) 282
IFAMS (Integrated Force Administration System) 118
IMPATT DEVICES 75-76
In Defense of the Nation, Clifford A. Warren 96-107
INFORMATION THEORY 87-89
Innovation in Communications Technology, Kenneth G. McKay 324-332
Innovation in the Exchange Area, Dean Gillette 360-367
INQUIRIES, ACD FOR 180-187
INTEGRATED CIRCUITS, ION BEAM MILLED 252
INTEGRATED CIRCUITS, ION IMPLANTED 392-393
INTEGRATED ELECTRONICS 78
Integrated Optical Circuits: Another Step Forward 349
Introducing CAMA Features to No. 1 ESS, William C. Garraty 395-399
INVENTION 170-174
INVENTIVE MIND 172-173
INVENTORIES 121-124
INVENTORS DAY 170-174
ION BEAMS 252
Ion Implantation, Walter L. Brown and Alfred U. Mac Rae 388-394
ISX (Interactive Executive System) 124

J

Jackson, Allen, *Serving Hotels, Motels, and Hospitals and the People They Serve* 272-277
Jewett, F. B. 62, 101
Joel, Amos E., *Switching* 30-39
Johnson, J. B. 74, 89
Johnson, L. F. 67
JOHNSON NOISE 74
Johnston, Ralph L. 74, 76

K

Kahn, Robert W., *Redesigned ACD Improves Directory-Assistance Service* 197-202
Keeping No. 4 Crossbar Young and Responsive, Ronald C. Snare 409-415
Keith, H. D. 63
Kelly, M. J. 72
Kemp, A. R. 62
KEY TELEPHONE SYSTEMS 21, 23-24
"KILLER" TRUNKS 278-283
King, J. C. 66, 67
Klapproth, Frederick F., *Simplifying the Design of Special Service Circuits* 188-196
Kohman, G. T. 62, 67
Kolb, E. D. 67
Kompfner, Rudolph 85
Kopp, William J., *Simplifying the Design of Special Service Circuits* 188-196
KTS 21, 23-24
KWAJALEIN ISLAND 102, 103

L

- Lanza, V. L. 64
- LASER MACHINING OF A TRANSMITTED IMAGE 162-169
- LASER MATERIALS 67
- LASER OPTICS 144-145
- LASERS 349, 444
- Lashley, Karl 150
- Laudise, R. A. 66, 67
- LEAD-POISON TESTER 285
- LEDs 444
- L5, DISTORTION IN 295-299
- Li, Tyngge, *Optical Transmission Research Moves Ahead* 333
- LIGHTWAVE TRANSMISSION 444
- LINEAR MICROPHONE FOR G36 HANDSET 291-292
- Little, J. B. 67
- LMX-3 MULTIPLEX, INDUCTORS FOR 226-233
- Logan, Ralph A. 349
- Lohmiller, Roy V., *The DIMENSION™ PBX: A New All-Electronic Customer Switching System* 316-323
- LONG ROUTE DESIGN SYSTEM 289-290
- Looking Inside Semiconductor Devices*, G. L. Miller and D. A. H. Robinson 129-135
- LOOP MAINTENANCE OPERATING SYSTEM 93, 94
- LOOPS, RESISTANCE ZONES FOR 288-294
- Lovell, C. A. 102
- Lowry, H. H. 62

M

- MAAP (Maintenance and Administration Panel) FOR DIMENSION™ PBX 319, 321-323
- Mackey, Edward T., *Mixing Data and Voice on the T1 Line* 136-142
- Mac Rae, Alfred U., *Ion Implantation* 388-394
- Macurdy, William B., *The Network: Forging Nationwide Telephone Links* 4-15
- MAGNETIC ALLOYS 64
- MAGNETIC BUBBLE DEVICES, ION IMPLANTED 393-394
- MAGNETIC BUBBLE MATERIALS 69
- Mahajan, S. 65
- MAINTENANCE, NEW PROCEDURES AND FACILITIES FOR ELECTRONIC SWITCHING SYSTEMS 157-161
- Making Integrated Circuits with Ion Beams* 252
- Malm, F. S. 63
- Materials, W. P. Slichter 60-69
- MATERIALS CONSERVATION 430-437
- Mathematical Models Help Cut Distortion in High-Frequency Amplifiers*, Sundaram Narayanan and Donald L. Scharfetter 295-299
- Mathews, Max V., *Exploring the Speed of Mental Processes* 148-156
- Matsuoka, S. 63
- Matthews, John G. 23
- Maxwell, James Clerk 83
- Mayback, Wesley J., *Mixing Data and Voice on the T1 Line* 136-142
- Mayback, Wesley J., *T1C Carrier: The T1 Doubler* 256-263
- MCASP (Multiple Constraint Alternative Selector Program) 121
- McKay, Kenneth G., *Innovation in Communications Technology* 324-332
- McMillan, Brockway, *Theory and Principles: The Intellectual Framework* 82-89
- MEASUREMENTS ON SEMICONDUCTORS 129-135
- Meeting Business Needs with the No. 2B ACD*, Charles E. Morse 180-187
- MEMORY RESEARCH 148-156
- Messerli, Edwin J., *Faulty Trunks: A New Look at an Old Problem* 278-283
- METAL-OXIDE-SEMICONDUCTOR, ION IMPLANTED 392-393

- METROPOLITAN COMMUNICATIONS 352-359
- Meyer, David E., *Exploring the Speed of Mental Processes* 148-156
- MICROWAVE MULTICAVITY MAGNETRON 101
- MICS (Maintenance Inventory Control System) 122
- MILITARY RESEARCH AND DEVELOPMENT 96-107
- Miller, G. L., *Looking Inside Semiconductor Devices* 129-135
- Millimeter Waveguide Scores High in Field Test*, William D. Warters 400-408
- MILLING WITH ION BEAMS 252
- MINICOMPUTER FOR T-CARRIER TROUBLE LOCATING 216-225
- Minimizing Downtime for Electronic Switching Systems*, Thomas F. Arnold and William B. Rohn 157-161
- Mixing Data and Voice on the T1 Line*, Edward T. Mackey, Wesley J. Mayback, and Sigmund B. Pfeiffer 136-142
- M9 ANTI-AIRCRAFT GUN DIRECTOR 100, 102
- MOBILE TELEPHONE SERVICE 28
- Molina, E. C. 88-89
- M1C DIGITAL MULTIPLEX 256-263
- Morgan, S. O. 62
- Morse, Charles E., *Meeting Business Needs with the No. 2B ACD* 180-187
- Morse, Samuel F. B. 88
- Morton, J. A. 75
- MORTON TRIODE 75
- Moster, Clarence R., *The Digital Data System Launches a New Era in Data Communications* 420-426
- MOVIMS (Motor Vehicle Information Management System) 120-121
- MULTILOCATION SERVICES, No. 1 ESS 264-271
- MULTIPLEX CARRIER TRANSMISSION 53
- MULTIPLEXER, DATA-VOICE 136-142
- MULTIPLEXERS, TIME DIVISION 425-426
- MUZAK 23

N

- Narayanan, Sundaram, *Mathematical Models Help Cut Distortion in High-Frequency Amplifiers* 295-299
- Nassau, K. 67
- NATIONAL DEFENSE RESEARCH COMMITTEE 101
- NATIONAL INVENTORS DAY 170-174
- NEGATIVE FEEDBACK 84-85
- Nesbitt, E. A. 64, 65
- Network: Forging Nationwide Telephone Links*, The, William B. Macurdy and Alistair E. Ritchie 4-15
- NETWORK HIERARCHY 4-11
- NETWORK, TELEPHONE, HISTORY OF 4-15
- New Breadboard Design Cuts Wiring and Testing Time* 213
- New Devices Serve as Solar Cells and Photodetectors* 212-213
- New Features for the 770A PBX*, Maurice A. Hoffman and Arthur P. Ryan 242-250
- New Record in Switching Speed*, A 144
- NEXT (Near-End Crosstalk) 258-259
- Nielsen, J. W. 69
- NIKE SYSTEMS 104-105
- 90A CPS (Customer Premises System) 273-274, 277
- NOISE, JOHNSON 74
- NOISE, THEORY OF 84-89
- NONLINEAR DISTORTION (Mathematical Models for) 295-299
- No. 1 ESS, CAMA FEATURES 395-399
- No. 1 ESS, MULTILOCATION SERVICE 264-271
- No. 1 ESS, SERVICES PROVIDED BY 272-277
- No. 4 CROSSBAR, PBC SYSTEM FOR 409-415
- No. 101 ESS 20
- Norton, E. L. 85
- NUMBERING PLAN, UNIVERSAL 7-10
- Nyquist, Harry 85-89

O

OCAP (Operating Companies Assignment Program) 327
 OFFICE CHANNEL UNIT 425
 Ohl, R. S. 67
 Olsen, K. M. 65
 1A KEY TELEPHONE SYSTEMS 23
 O'Neill, Eugene F., *Radio and Long-Haul Transmission* 50-59
On the Way: Lasers for Telecommunications, Bernard C. De Loach, Jr. 203-210
 OPERATOR SERVICES 118
 OPTICAL CIRCUITS 349
 OPTICAL FIBERS 49, 59, 203-206, 340-345
 OPTICAL FIBERS, CARRIER SOURCES 334-336
 OPTICAL FIBERS, LOSS 335
 OPTICAL FIBERS, SIGNAL DISTORTION 335
 OPTICAL TRANSMISSION 203-206, 349, 444
 OPTICAL WAVEGUIDE, ION IMPLANTED 394
 ORTHOPHONIC PHONOGRAPH 21
 OTSS (Off-the-Shelf System) 125, 127
 OXIDE MASKING 79-81

P

Padden, F. J. 63
 Pamm, Leonard R., *The Digital Data System Launches a New Era in Data Communications* 420-426
 PANEL SWITCHING 30-39
 Parkinson, D. B. 102
 PATENT PROCESS 171-172
 PBC SYSTEM 409-415
 PBX CIRCUIT PACK TESTING 307-311
PBX Maintenance Comes Wrapped in a New Package, John D. Wiidakas 300-306
 PBX (Private Branch Exchange), THE DIMENSION™ 316-323
 PBXs 18-21
 Penfield, Walter 150
 PERC (Processor Emergency Recovery Circuit) 159-161
 PERFORMANCE INDICES 125-126
 PERIPHERAL BUS COMPUTER 409-415
 PERMALLOYS 64-65
 Pfann, W. G. 68, 76
 Pfeiffer, Sigmund B., *Mixing Data and Voice on the T1 Line* 136-142
 PHOTODETECTORS 212, 338
 PICTUREPHONE® VISUAL TELEPHONE 25-26
 Pierce, John R. 87
 PLANT OPERATIONS 120-121
 PLASTIC, RECYCLING 427-429
 PLASTICS FOR OUTDOOR CABLE 62-64
 PLUG-IN INVENTORY CONTROL SYSTEM (PICS) 93-94
 POLYETHYLENE 63-64
 POLYVINYL CHLORIDE (PVC) 427, 429
 POPS (Program for Operator Scheduling) 118, 121
 POWER FOR INTEGRATED CIRCUITS 438-442
 PRICING THEORY 128
 PROBFOR (Probability Forecasting) 123
 PROFILING METHOD 129-135
 PULSE CODE MODULATION (PCM) 45-46
 PULSE WIDTH CONTROL (PWC) DC-TO-DC CONVERTERS 438-442

Q

QUALITY CONTROL, STATISTICAL 89
 QUALITY OF TRANSMISSION 9, 13-15
 QUARTZ, SYNTHETIC 65-69
 QUEUEING THEORY 89
 QUICK-CONNECT WIRING 213

R

RADAR 99-102
Radio and Long-Haul Transmission, Eugene F. O'Neill 50-59
 RADIO, HIGHLIGHTS OF CONTRIBUTIONS 108-109
 Radosevich, Roger A., *G36 Handset: Good News for Serving Far-out Customers* 288-294
 REACTION TIME EXPERIMENTS ON HUMAN MEMORY 148-156
 Read, W. T. 75
 Rechtenbaugh, Donald L., *T-Carrier Administration System Speeds Service Restoration* 216-225
 RECORD KEEPING, TRUNKS 368-375
 RECYCLING METALS 434-435
Recycling Turns Scrap Phones into New Plastic Products, Harvey C. Hancock and Philip Hubbauer 427-429
Redesigned ACD Improves Directory-Assistance Service, Robert W. Kahn 197-202
 REGULATORY CONSTRAINT 128
 Reinhart, Franz K. 349
 RELIABILITY, NEW CONCEPTS FOR ELECTRONIC SWITCHING SYSTEMS 157-161
 Remeika, J. P. 69
 REMENDUR 65
 REPEATERS, OPTICAL 337
 RESISTANCE ZONES FOR CUSTOMER LOOPS 288-294
 Rice, S. O. 89
 Richardson, Delton B., *Upgrading Multilocation Services With No. 1 ESS* 264-271
 Riggerink, Merle D., *Better Glass Fibers for Optical Transmission* 340-345
 Ritchie, Alistair E., *The Network: Forging Nationwide Telephone Links* 4-15
 Robinson, D. A. H., *Looking Inside Semiconductor Devices* 129-135
 Rohn, William B., *Minimizing Downtime for Electronic Switching Systems* 157-161
 Rorty, M. C. 89
 Rudd, D. W. 66, 67
 RURAL AREAS, HANDSET FOR 288-294
 Ryan, Arthur P., *New Features for the 770A PBX* 242-250

S

Sabia, R. 64
 SAFEGUARD SYSTEM 102, 106
 SATELLITE COMMUNICATIONS 58
 Scaff, J. H. 67, 68
 SCANNER FOR IMAGING, EXPERIMENTAL 162-169
 Schaefer, J. W., *Alpha and Omega of the Network: Customer Products* 16-29
 Scharfetter, Donald L., *Mathematical Models Help Cut Distortion in High-Frequency Amplifiers* 295-299
 Schmidt, Paul 252
 Scovil, H. E. D. 73, 77
Sea Plow IV Ready to Swim 313
 Seidel, Harold 73, 77, 171
 SEMICONDUCTOR DEVICES, MEASUREMENTS OF 129-135
 SEMICONDUCTOR SWITCH 144
 SENTINEL SYSTEM 106
 SERVING AREA CONCEPT (SAC) 46, 47
Serving Hotels, Motels, and Hospitals and the People They Serve, Larry Behmer and Allen Jackson 272-277
 770A PBX, NEW FEATURES FOR 242-250
 SG SUBMARINE CABLE, DISTORTION IN 295-299
 Shannon, Claude E. 74, 87-89, 150
 Shewhart, Walter 89
 Shockley, William 72, 73
Simplifying the Design of Special Service Circuits, Wylie B. Humphries, Frederick F. Klapproth, and William J. Kopp 188-196

Sipress, Jack M., *T4M: New Superhighway for Metropolitan Communications* 352-359
 Slichter, W. P. 67
 Slichter, William P., *Materials* 60-69
 SLIMS (Supply Line Inventory Management System) 122
 SMALL TELEPHONE SYSTEM 24
 Snare, Ronald C., *Keeping No. 4 Crossbar Young and Responsive* 409-415
 SOLAR CELLS 212
Some Notable Achievements 110-111
 SOUND MOTION PICTURES 22-23
 Southworth, George 53, 101, 401-402
 Spencer, Edward 252
 Sparks, M. 67
 SPECIAL SERVICE CIRCUITS 188-196
 Sperling, George 155
 SPINODAL ALLOYS 435-436
 STANDARD DESIGNS FOR SPECIAL SERVICE CIRCUITS 188-196
 STANDARD WIRING PLANS 23
 STATLIB (Statistical Computing Library) 117, 123-124
 STEP-BY-STEP SWITCHING 30-39
 Sternberg, Saul, *Exploring the Speed of Mental Processes* 148-156
 STORED PROGRAM CONTROL (SPC) 37
 STS 24
 SUBMARINE CABLE 58
 Sullivan, R. A.
 SUPERMALLOY 65
 SWIFT (System Workshops in Forecasting Techniques) 124
 Switching, Amos E. Joel 30-39
 SWITCHING, A NEW RECORD IN SPEED 144
 SYSTEM STATUS INDICATOR (PBX) 300-306

T

TAT-6 TRANSATLANTIC CABLE 313
T-Carrier Administration System Speeds Service Restoration, Robert G. Buus, Donald L. Rechtenbaugh, and Richard B. Whipp 216-225
 TCAS (T-Carrier Administration System) 216-225
 Teal, G. K. 67
 TELEPHONES, DECORATIVE 234-241
Testing PBX Circuit Packs, Douglas B. Armstrong 307-311
T4M: New Superhighway for Metropolitan Communications, Jack M. Sipress 352-359
Theory and Principles: The Intellectual Framework, Brockway McMillan 82-89
 THERMOPLASTICS, RECYCLING 429
 Theuerer, H. C. 69
 Thomas, D. G. 77
 Timko, Joseph W., *TIRKS Takes the Paper Work Out of Trunk Record Keeping* 368-375
 Tinus, W. C. 107
TIRKS Takes the Paper Work Out of Trunk Record Keeping, Joseph W. Timko 368-375
 TOLL TRANSMISSION 50-59
 T1 CARRIER SYSTEM, CAPACITORS FOR 227-228
 T1 TRANSMISSION SYSTEM 45, 46, 48, 330-331, 424
 T1 TROUBLE LOCATING 216-225
T1C Carrier: The T1 Doubler, James F. Graczyk, Edward T. Mackey, and Wesley J. Maybach 256-263
 T1WB4 DATA-VOICE MULTIPLEXER 136-142
 TOTS (Total Operating Traffic System) 118
 TRAFFIC THEORY 89
TRANSACTION™ Telephone Gets the Facts at the Point of Sale, V. Scott Borison 376-383
 TRANSATLANTIC CABLE 313
 TRANSISTOR ELECTRONICS, MILESTONES 74
 TRANSISTOR INVENTION AND DEVELOPMENT 72, 78

TRANSLATION, DIGIT 9-10
 TRANSMISSION QUALITY 40-49
 TRCC (T-Carrier Restoration Control Center) 216-225
 TRUNK PROBLEMS, DETECTING AND LOCATING 278-283
 TRUNK RECORD KEEPING 368-375
 TWX 24

U

Upgrading Multilocation Services With No. 1 ESS, Delton B. Richardson 264-271

V

VACUUM TUBE AMPLIFIER IN LONG-HAUL TRANSMISSION 52-53
 VACUUM TUBES, EARLY 72
 Van Uiter, L. G. 67, 69, 170
 VIA NET LOSS (VNL) 15
 VICALLOYS 65
 VOICE-DATA MULTIPLEXER 136-142
 Vyssotsky, Victor A., *Computers and Computer-Based Systems* 90-95

W

Wahl, C. V. 65
 Walker, A. C. 67
 Wallder, V. T. 63
 Warren, Clifford A., *In Defense of the Nation* 96-107
 Warters, William D., *Millimeter Waveguide Scores High in Field Test* 400-408
 Watson, Hugh A., *An Experimental Page Facsimile System* 162-169
 WAVEGUIDE, CIRCULAR MILLIMETER 400-408
 WAVEGUIDE, DIELECTRIC-LINED 403-404
 WAVEGUIDE, HELIX 403-404
 WAVEGUIDE, OPTICAL 340-345
 WAVE NATURE OF ELECTRONS 72
 Wenny, D. H. 65
 Wernick, J. H. 65
 WHEATSTONE BRIDGE 230
 Whipp, Richard B., *T-Carrier Administration System Speeds Service Restoration* 216-225
 White, A. H. 62, 67
 White, J. H. 65
 White, Lowell D., *COZY: Accurate Automatic Measurements of Components* 226-233
 WHITE SANDS MISSILE RANGE 104
 Wiebusch, C. F. 63, 107
 Wiidakas, John D., *PBX Maintenance Comes Wrapped in a New Package* 300-306
 Williams, R. R. 62
 Winslow, F. H. 62, 64
 WIRE-LINE TELEVISION 22
 WIRING TECHNIQUE, EXPERIMENTAL 213
 WT4 MILLIMETER WAVEGUIDE SYSTEM 400-408

Y

YELLOW PAGES, LAYING OUT 168
 YRAP (Yellow Page Rate Base Analysis Plan) 119

Z

Zobel, O. J. 84-87

